

Defining country-driven research priorities for malaria control and elimination

At a glance

The U.S. President's Malaria Initiative (PMI) Insights Project carried out a broad stakeholder consultation process to identify pressing evidence gaps in malaria strategy and guidelines and **to define a set of country-driven operational research (OR) and program evaluation (PE) priorities** to address the gaps. The overall aim of this effort was to foster alignment of priority research areas identified by national malaria programs (NMPs) and malaria-endemic stakeholders with funding agency priorities, thereby allowing for a more coordinated and impactful approach to research investment decisions.



Photo: [U.S. President's Malaria Initiative](#)

Key themes that emerged from the research prioritization process were:

1. NMPs need more evidence on the effectiveness and cost-effectiveness of different interventions and intervention packages to guide programming and subnational tailoring of interventions;
2. Evidence on effective strategies to reach and maintain high coverage of core malaria interventions is a priority for NMPs;
3. Health system challenges need to be addressed in order to improve effective coverage of malaria interventions.

The process resulted in a defined set of 33 OR and PE topics that reflect critical evidence gaps that are impeding many NMPs' achievement of high coverage of malaria interventions and the effective deployment of new tools (see page 4 for complete list). Research topics identified through the consultation process were prioritized by a committee of malaria experts from endemic countries in sub-Saharan Africa and are organized by key thematic areas. If addressed, the prioritized topics have the potential to support the achievement of high coverage of malaria interventions and ensure continued progress toward improved malaria control and elimination.

Background

In a time of stalled progress and multiple threats to effective malaria control, clear guidance on best practices for achieving and maintaining high levels of intervention coverage and for deploying new tools and approaches are critical to the success of malaria control and elimination efforts. Research plays an important role in providing high-quality evidence to guide national malaria programs on how to optimize intervention implementation for greater efficiency and impact.

Many countries have processes in place to define their own set of research priorities for malaria control and elimination; however, the malaria community lacks a platform to bring malaria stakeholders together to discuss and identify pressing OR and PE topics that have broad relevance across malaria-endemic settings. Further, funding agencies have expressed a desire to better understand country research priorities and a commitment to use the prioritized topics to ensure their institutional investments are grounded in endemic country priorities, as well as put in place improved processes for coordinating research efforts across agencies.

The U.S. President's Malaria Initiative (PMI) funded the PMI Insights Project to facilitate a consultative process to develop a prioritized list of OR and PE topics that can serve as a key resource for the malaria community to inform OR and PE investment decisions. The process and resulting list of topics are intended to:

1. Identify OR and PE questions that are relevant across multiple countries and will address the most pressing gaps in malaria policy, strategy, and implementation guidance.
2. Strengthen coordination and investment in research that is grounded in country perspectives and priorities for maximum relevance and impact.
3. Foster greater alignment of funding agency research priorities with country identified priorities.

PMI Insights partnered with the **Université Cheikh Anta Diop (UCAD) in Dakar, Senegal** to co-lead the research prioritization process.

Defining the priorities

To start, PMI Insights developed an overarching framework to guide the prioritization process, which outlined the scope, objective, approach, targeted stakeholders, and key thematic areas for framing the resulting research priorities from the process. An extensive consultation process was then carried out with key stakeholders to gather their perspectives on operational challenges faced by NMPs, pressing evidence gaps in malaria strategy and guidelines, and priority OR and PE topics to address the identified challenges and gaps. Stakeholders targeted from the consultations included representatives from the following groups:

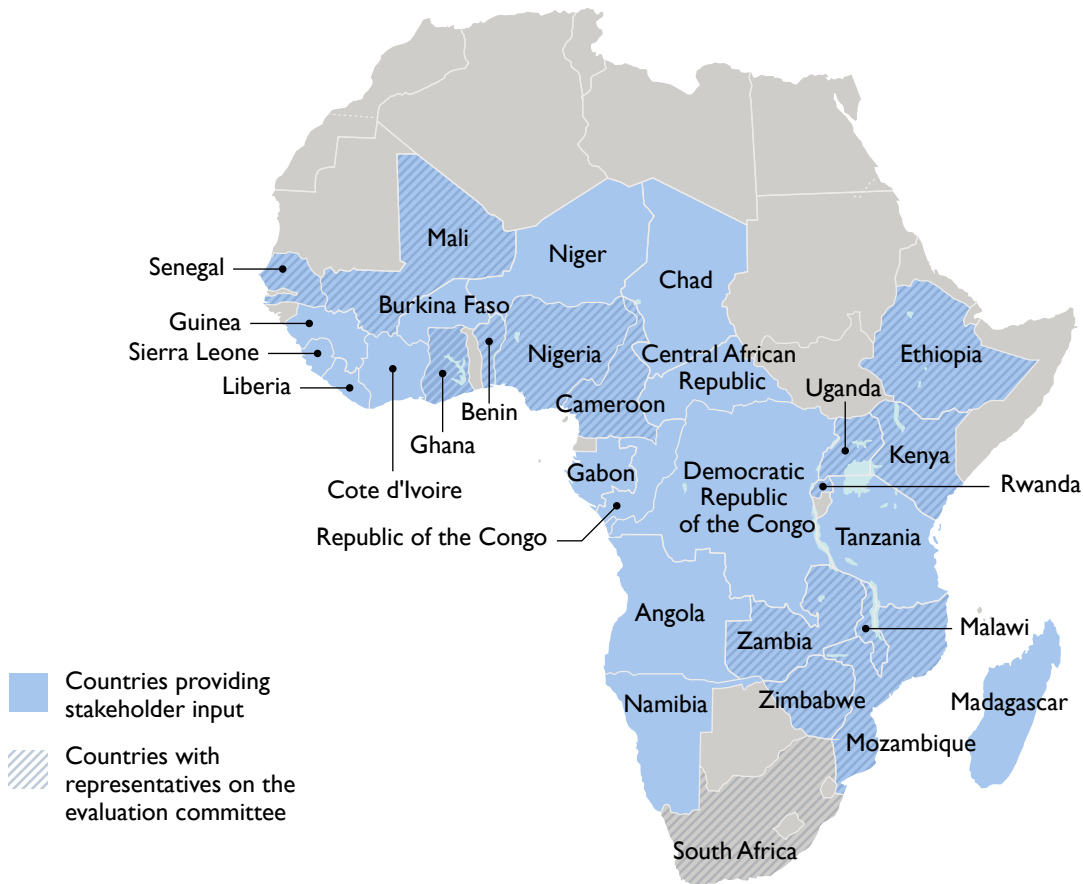
- National malaria programs from PMI focal countries in sub-Saharan Africa.
- Malaria-endemic research institutions within sub-Saharan Africa.
- Funding agencies, including PMI, the Bill & Melinda Gates Foundation, and The Global Fund to Fight AIDS, Tuberculosis and Malaria.
- World Health Organization (WHO) country and African Regional Office representatives.
- Global technical partners working in/providing support to malaria programming and research (e.g., non-profit organizations, USG agencies, and academic institutions outside of SSA).

FIGURE 1. Research prioritization approach.

STAKEHOLDER MAPPING	DOCUMENT REVIEW	CONSULTATIONS	SYNTHESIS	EVALUATION
Mapped stakeholders to consult on operational challenges, evidence gaps, and research priorities.	Conducted comprehensive document review and analyzed the information using the research prioritization framework.	Interviewed stakeholders from NMPs, research institutions, WHO, and funding agencies and gathered inputs from global partners through an online survey.	Identified a list of 33 emerging OR and PE topics from the consultations and document review.	Formed an external committee to evaluate and rank the topics using defined evaluation criteria.

The perspectives of NMPs, researchers, and implementing partners from malaria-endemic countries were central to defining the initial list of research priorities and the subsequent evaluation of the identified priorities. Through the consultation process, inputs were gathered from stakeholders across 26 countries in sub-Saharan Africa (see figure 2). The topics were then evaluated and prioritized by an externally-formed evaluation committee composed of leaders from malaria-endemic research institutions, national malaria programs, and WHO country representatives, and co-chaired by Evelyn Ansah (University of Health and Allied Sciences in Ghana) and Roger Tine (UCAD). The committee members were selected to ensure diverse representation across institution type, areas of malaria expertise, geographic regions of sub-Saharan Africa, and gender.

FIGURE 2. Countries represented in the research prioritization process.



The PMI Insights team adapted the evaluation process and scoring methodology from the Child Health and Nutrition Research Initiative research priority setting methodology. The committee was tasked with evaluating the research topics across six key criteria: broad relevance, high impact on malaria burden, improves efficiency, addresses inequities, scalability and sustainability, and feasibility. The resulting list of 33 OR and PE topics are ranked according to their level of priority and organized by key thematic areas.

Translating the prioritized topics into practice

The prioritized list of topics is intended to serve as a key resource for maximizing the relevance and impact of OR and PE investments by galvanizing a coordinated effort among funding agencies, national malaria programs, and technical partners to fill critical knowledge gaps identified by malaria-endemic country stakeholders.

Moving forward, PMI Insights will track and share progress made on the prioritized topics with input from the malaria community on the most effective channels for dissemination and use. The prioritized list will be regularly updated to ensure its relevance and to capture emerging priorities. PMI Insights will work with leaders in the malaria community to identify additional stakeholders to engage in future updates to the prioritized list to maximize the perspectives of local experts in the process and resulting outputs.

Additional information on the malaria OR and PE research prioritization process and the latest updates on related research can be found at <https://www.insightsmalaria.org/>.

Reference

1. Rudan, I., Gibson, J.L., Ameratunga, S., et al. 2008. Setting priorities in global child health research investments: Guidelines for implementation of the CHNRI method. *Croat. Med Journal*; 49(6): 720-733. doi: 10.3325/cmj.2008.49.720

Prioritized list of malaria OR and PE topics

RANK	RESEARCH TOPIC	THEMATIC AREA
1	Test and evaluate different delivery mechanisms to reach and sustain high coverage of insecticide-treated nets among hard-to-reach and highest risk populations.	Prevention
2	Evaluate the effectiveness and cost-effectiveness of different strategies for deploying the RTS,S/AS01 malaria vaccine with chemoprevention.	Prevention and chemoprevention
3*	Assess the effectiveness and cost-effectiveness of different intervention combinations (e.g., prevention/vector control and chemoprevention) to better understand how interventions should be combined to maximize impact.	Crosscutting
3*	Test and evaluate approaches or interventions to reduce the frequency of stockouts of key commodities for malaria case management, especially at the community level (specifically addressing challenges related to commodity quantification, stock management capacity, reporting, and use of stock data).	Case management
5	Evaluate and compare different insecticide management and/or rotation strategies on insecticide resistance prevalence and intensity (crosscuts use of insecticide-treated nets and indoor residual spraying).	Prevention
6	Evaluate the impact and cost-effectiveness of expanding the age range, geographical coverage, and rounds of treatment of seasonal malaria chemoprevention.	Chemoprevention

7	Assess factors associated with volunteer community health worker cadres' motivation and retention and evaluate different approaches or interventions to improve volunteer community health worker motivation and retention.	Case management
8	Assess predictors of adherence to and determinants of uptake of seasonal malaria chemoprevention and evaluate different strategies to achieve high seasonal malaria chemoprevention coverage and adherence.	Chemoprevention
9	Test and evaluate the effectiveness of different deployment and targeting approaches for indoor residual spraying to maximize impact.	Prevention
10*	Assess different approaches or interventions to improve the analytic and data use capacity, and data use culture at different levels of the health system.	Surveillance, monitoring, and evaluation
10*	Assess the impact of indoor residual spraying and focal/reactive indoor residual spraying on malaria burden, transmission, and insecticide resistance.	Prevention
10*	Given the challenges with insecticide-treated net durability, test and evaluate the effectiveness of different approaches to improve routine/continuous distribution channels for insecticide-treated nets to sustain coverage between mass campaigns.	Prevention
13	Compare different social and behavior change/community engagement strategies in terms of effectiveness and cost-effectiveness on health care seeking, adherence to treatment, and uptake of key prevention interventions.	Community engagement/social and behavior change
14	Assess the effectiveness and cost-effectiveness of innovative approaches to reduce the cost and/or improve the efficiency of indoor residual spraying implementation (e.g., partial spraying of structures, use of a decentralized approach, targeted spraying).	Prevention
15	Assess structural and behavioral factors associated with delayed care-seeking across different population groups (e.g., age, gender, hard-to-reach/vulnerable populations) and compare different strategies to decrease delays in care-seeking.	Case management
16	Assess predictors of adherence and non-adherence to case management treatment guidelines among health care providers and test/evaluate different strategies to improve adherence to guidelines.	Case management
17	Evaluate how current surveillance systems are functioning, and whether they are producing reliable and accurate information to guide countries toward elimination.	Surveillance, monitoring, and evaluation
18	Assess the operational feasibility and most effective delivery platform for administering intermittent preventive treatment for malaria in infants (e.g., expanded program on immunization, mass campaign, community health workers).	Chemoprevention
19	Assess the feasibility and benefit of different digital tools/systems for data capture, reporting, and transmission to health management information systems (e.g., district health information software) at the community level.	Surveillance, monitoring, and evaluation
20*	Evaluate different strategies for achieving high mass drug administration coverage and adherence in different transmission contexts.	Chemoprevention

20*	Test and evaluate interventions to improve adherence to malaria treatment guidelines and reporting in the private sector (note: private sector is inclusive of private sector health facilities, providers, drug shops, and pharmacies).	Case management
22	Assess the long-term effectiveness and sustainability of different social and behavior change approaches on key malaria treatment and prevention behaviors and the duration of their impact on intervention uptake.	Community engagement/social and behavior change
23*	Compare different strategies for surveillance and response in elimination settings, assessing completeness, timeliness, delivery of response, and cost-effectiveness.	Surveillance, monitoring, and evaluation
23*	Test the effectiveness of different strategies to improve intermittent preventive treatment in pregnancy coverage.	Chemoprevention
25	Test and evaluate strategies to improve the efficiency of the delivery of intermittent preventive treatment in pregnancy (e.g., community-based delivery through community health workers).	Chemoprevention
26	Test and evaluate different approaches or interventions for improving health management information system data quality (e.g., assess minimum periodicity of supervision, strategies for easing reporting burden on staff/simplification of reporting system, strategies to incentivize reporting accuracy).	Surveillance, monitoring, and evaluation
27	Evaluate different strategies to improve health care worker adherence to integrated management of childhood illness guidelines.	Case management
28*	Evaluate the effectiveness and cost-effectiveness of larval source management on epidemiological and entomological outcomes in different transmission contexts and the duration of impact.	Prevention
28*	Test approaches or strategies to improve cost and resource efficiency of seasonal malaria chemoprevention (e.g., integration with other delivery platforms) and to maintain effectiveness in the delivery of seasonal malaria chemoprevention when scaling up the intervention.	Chemoprevention
28*	Compare or evaluate different strategies or packages of interventions to prevent resurgence of malaria cases following the withdrawal of indoor residual spraying.	Prevention
31	Assess barriers and facilitators to insecticide-treated net use in different settings where access to nets is high and evaluate the effectiveness of different social and behavior change approaches or interventions to improve use within different settings/contexts based on the identified barriers.	Prevention and community engagement/ social and behavior change
32	Test different approaches for working with and/or incentivizing participation and collaboration of the private sector in the referral, diagnosis, treatment, and reporting of malaria cases.	Case management
33	Assess the impact of cross border movement of people on malaria incidence/prevalence and evaluate the effectiveness of different strategies to reduce malaria transmission across international borders.	Crosscutting

Note: * Indicates the research topics received the same overall ranking score.

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